

In the claims:

Please substitute the following full listing of claims for the claims as originally filed or most recently amended.

1. (Currently Amended) A detection device for detecting ejection condition of an ejection member of a drop-on-demand type inkjet recording device, the detection device comprising:

a controller that controls the ejection member to eject a recording ink droplet or a refresh ink droplet, the recording ink droplet impinging on a recording medium;

a collector that collects the refresh ink droplet;

a deflection means ~~for deflecting that deflects at least~~ the refresh ink droplet such that the deflected refresh ink droplet impinges on the collector, the refresh ink droplet being deflected by a greater amount than the recording ink droplet when a deflection power is applied to each of the refresh ink droplet and the recording ink droplet; and

a detecting means ~~for detecting that detects an~~ ejection condition of the ejection member based on a condition of the refresh ink droplet as the refresh ink droplet is collected by the collector during impingement thereon as deflected by the deflection means.

2. (Original) The detection device according to claim 1, wherein the controller selectively controls the ejection member to eject a recording ink droplet at predetermined timings onto a recording medium, thereby forming a recording dot on the recording medium, and the controller controls the ejection member to eject the refresh ink droplet at a timing between the predetermined timings.

3. (Original) The detecting device according to claim 1, wherein the detecting means is provided common to all of a plurality of nozzles formed in the ejection member, and the controller controls the ejection member to eject the refresh ink droplet from the plurality of nozzles at different timings.

4. (Original) The detecting device according to claim 1, wherein the detecting means includes a detector that detects a charging state of the refresh ink droplet.

5. (Original) The detecting device according to claim 4, wherein the detector includes an induced current detecting electrode provided near a trajectory of the refresh ink droplet and a current detector that detects an electric current generated in the induced current detecting electrode.

6. (Original) The detecting device according to claim 1, wherein the detecting means includes an electric current detector that detects an electric current which flows through the collector when the refresh ink droplet impinges on the collector.

7. (Original) The detection device according to claim 1, wherein the detecting means includes a wetness detecting electrode disposed inside the collector and a detector that detects a clinging condition of the refresh ink droplet that clings on the wetness detecting electrode.

8. (Original) The detecting device according to claim 7, wherein the detector detects the clinging condition by detecting change in electric resistance between the wetness detecting electrode and the collector.

9. (Previously Presented) The detecting device according to claim 1, wherein the detecting means includes an emitting member that emits a light flux that passes through a trajectory of the refresh ink droplet, a receiving member that receives the light flux emitted from the emitting member, and a detector that detects a shielding condition in which the light flux is shielded by the refresh ink droplet that flies along the trajectory.

10. (Original) The detecting device according to claim 1, wherein the collector and the deflection means are formed integral with each other.

11. (Currently Amended) ~~An~~ A drop-on-demand inkjet recording device comprising:

an ejection member for ejecting a refresh ink droplet;

a controller that controls the ejection member to eject a recording ink droplet or the refresh ink droplet, the recording ink droplet impinging on a recording medium;

a collector that collects the refresh ink droplet;

a deflection means ~~for deflecting that deflects at least~~ the refresh ink droplet such that the deflected refresh ink droplet impinges on the collector, the refresh ink droplet being deflected by a greater amount than the recording ink droplet when a deflection power is applied to each of the refresh ink droplet and the recording ink droplet; and

a detecting means ~~for detecting that detects~~ an ejection condition of the ejection member based on a condition of the refresh ink droplet as the refresh ink droplet is collected by the collector during impingement thereon as deflected by the deflection means.

12. (Original) The inkjet recording device according to claim 11, wherein the ejection member further ejects a recording ink droplet onto a recording medium, thereby forming a recording dot on the recording medium, and the controller selectively controls the ejection member to eject the recording ink droplet at predetermined timings and to eject the refresh ink droplet at a timing between the predetermined timings.

13. (Original) The inkjet recording device according to claim 11, wherein:

the ejection member is formed with a plurality of nozzles through which refresh ink droplets are ejected;

the detecting means is provided common to all the plurality of nozzles; and

the controller controls the ejection member to eject the refresh ink droplet from the plurality of nozzles at different timings.

14. (Original) The inkjet recording device according to claim 11, wherein the detecting means includes a detector that detects a charging state of the refresh ink droplet.

15. (Original) The inkjet recording device according to claim 14, wherein the detector includes an induced current detecting electrode provided near a trajectory of the refresh ink droplet and a current detector that detects an electric current generated in the induced current detecting electrode.

16. (Original) The inkjet recording device according to claim 11, wherein the detecting means includes an electric current detector that detects an electric current which flows through the collector when the refresh ink droplet impinges on the collector.

17. (Original) The inkjet recording device according to claim 11, wherein the detecting means includes a wetness detecting electrode disposed inside the collector and a detector that detects a clinging condition of the refresh ink droplet that clings on the wetness detecting electrode.

18. (Original) The inkjet recording device according to claim 17, wherein the detector detects the clinging condition by detecting change in electric resistance between the wetness detecting electrode and the collector.

19. (Previously Presented) The inkjet recording device according to claim 11, wherein the detecting means includes an emitting member that emits a light flux that passes through a trajectory of the refresh ink droplet, a receiving member that receives the light flux emitted from the emitting member, and a detector that detects a shielding condition in which the light flux is shielded by the refresh ink droplet that flies along the trajectory.

20. (Original) The inkjet recording device according to claim 11, wherein the collector and the deflection means are formed integral with each other.

21. (New) A drop-on-demand type inkjet recording device comprising:

- a ejection member that ejects a refresh ink droplet;

- a controller that controls the ejection member to eject the refresh ink droplet, said refresh ink droplet differing in weight, mass or velocity from a recording ink droplet;

- a collector that collects the refresh ink droplet;

- a deflection member that deflects the refresh ink droplet in a manner different from a said recording ink droplet such that the deflected refresh ink droplet impinges on the collector; and

- a detecting member that detects a defective condition of the ejection member based on the refresh ink droplet.

22. (New) The drop-on-demand type inkjet recording device according to claim 21, further comprising an ejection stop unit that stops ejection from the defective ejection member based on a detection result of the detecting member.

23. (New) A detection device for detecting ejection condition of an ejection member of a drop-on-demand type inkjet recording device, the detection device comprising:

    a controller that controls the ejection member to eject a recording ink droplet or a refresh ink droplet, said recording ink droplet being ejected from the ejection member with different weight, mass or speed from said refresh ink droplet;

    a collector that collects the refresh ink droplet;

    a deflection means that deflects at least the refresh ink droplet such that the deflected refresh ink droplet impinges on the collector and the recording ink droplet impinges on a recording medium; and

    a detecting means that detects an ejection condition of the ejection member based on a condition of the refresh ink droplet as the refresh ink droplet is collected by the collector during impingement thereon as deflected by said deflection means.

24. (New) A drop-on-demand inkjet recording device comprising:

- an ejection member for ejecting recording ink droplet or a refresh ink droplet;

- a controller that controls the ejection member to eject the recording ink droplet or the refresh ink droplet, said recording ink droplet being ejected from the ejection member with different weight, mass or speed from said refresh ink droplets;

- a collector that collects the refresh ink droplet;

- a deflection means that deflects at least the refresh ink droplet such that the deflected refresh ink droplet impinges on the collector and the recording ink droplet impinges on a recording medium; and

- a detecting means that detects an ejection condition of the ejection member based on a condition of the refresh ink droplet as the refresh ink droplet is collected by the collector during impingement thereon as deflected by said deflection means.



25. (New) A detection device for detecting ejection condition of an ejection member of a drop-on-demand type inkjet recording device, the detection device comprising:

- a controller that controls the ejection member to eject a recording ink droplet or a refresh ink droplet, the recording ink droplet being ejected from the ejection member with different weight, mass or speed from the refresh ink droplet, and impinging on a recording medium;

- a collector that collects the refresh ink droplet;

- a deflection means that deflects at least the refresh ink droplet such that the deflected refresh ink droplet impinges on the collector; and

- a detecting means that detects an ejection condition of the ejection member based on a condition of the refresh ink droplet as the refresh ink droplet is collected by the collector during impingement thereon as deflected by the deflecting means.

26. (New) A drop-on-demand inkjet recording device comprising:

- an ejection member for ejecting a refresh ink droplet;

- a controller that controls the ejection member to eject a recording ink droplet or a refresh ink droplet, the recording ink droplet being ejected from the ejection member with different weight, mass or speed from the refresh ink droplet, and impinging on the recording medium;

- a collector that collects the refresh ink droplet;

- a deflection means that deflects at least the refresh ink droplet such that the deflected refresh ink droplet impinges on the collector; and

- a detecting means that detects an ejection condition of the ejection member based on a condition of the refresh ink droplet as the refresh ink droplet is collected by the collector during impingement thereon as deflected by the deflecting means.